

Remarks

Claims 1-19, 22-29, and 31 are pending in this application.

Claims 1-4, 6-14, 16-19, 22-28, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Harbin (U.S. Patent No. 5,488,737) in view of Fette (U.S. Patent No. 5,612,948). Claim 29 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fette in view of Allen (U.S. Patent No. 7,185,097). Claim 5 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Harbin in view of Fette further in view of Komara (U.S. Patent No. 6,690,662). Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Harbin in view of Fette further in view of Cunningham (U.S. Patent No. 4,144,496). The invention is believed to be patentable.

Independent claim 1 recites a wireless communication system comprising a plurality of access points and a plurality of subscriber units. Each access point has at least one omnidirectional antenna forming a substantially uniform coverage area around the access point. Each subscriber unit has at least one directional antenna forming a directional coverage area. The directional coverage area is selectable from a plurality of directional coverage areas provided by the subscriber unit. Each subscriber unit communicates with a particular access point through transmissions between the subscriber unit directional antenna and the omnidirectional antenna for the particular access point.

Harbin describes a wireless communication system having a scanned directional antenna. The receive antenna on a base station has a directional pattern in a horizontal plane and a mechanism for steering the directional pattern azimuthly until a synchronization signal transmitted by a remote station located within the coverage area is received by the base station receiver. Harbin does describe that each base station 12 may be provided with a high gain omnidirectional base station transmit antenna 15 (Figure 1B). Harbin further describes that the use of the omnidirectional transmit antenna 15 will not require scanning in order to transmit information to a particular remote station 16. Harbin further describes that base station 12 directs the narrow beam of its corresponding base station receive antenna 14 towards remote

station 16, and that each base station receive antenna 14 includes a narrow, high gain receive pattern which is scanned throughout at least a portion of the coverage area 19 of the base station 12. Column 7, lines 38-60.

Note that claim 1 does recite that each access point has an omnidirectional antenna forming a substantially uniform coverage area around the access point. In Harbin, the narrow, high gain receive antenna clearly does not form a uniform coverage area around the base station. That is, although Harbin does describe limited use of an omnidirectional base station transmit antenna, Harbin does not describe a uniform coverage access point as claimed but rather describes an omnidirectional transmit antenna together with a high gain, narrow pattern, receive antenna.

The Examiner acknowledges that Harbin fails to describe a subscriber unit with a directional antenna forming a directional coverage area that is selectable from a plurality of directional coverage areas provided by the subscriber unit.

In making the rejection, the Examiner relies on Fette as a secondary reference.

There is no motivation to modify Harbin in view of Fette to achieve the claimed invention. After all, in Harbin, the base station 12 has a narrow, high gain receive antenna. That is, Harbin requires the use of a narrow pattern receive antenna, and accordingly, there is no suggestion to use mobile units having directional antennas forming directional coverage areas in Harbin. After all, it is not clear that Harbin would even be operational with such subscriber units due to Harbin's use of a narrow, high gain scanning receive antenna. The proposed modification to Harbin would clearly change the principle operation of Harbin, is inappropriate; and, it is unclear whether or not the modified system would be operable.

Regarding Fette, the Examiner states that Fette describes subscriber unit 16 having directional antennas 56. To the extent that Fette describes such a subscriber unit, Fette is describing the use of the subscriber node as a repeater for a base node 12 such that subscriber nodes that cannot communicate directly with the base node 12 may have their

communications indirectly routed to the base node 12 through one or more repeating subscriber nodes. As explained above, even to the extent that Fette describes a subscriber node with a directional antenna, the directional receive antenna at the base station in Harbin does not allow modification of Harbin to achieve the claimed invention.

In summary, the invention contemplates a reverse sectorization wireless communication system. That is, the invention contemplates a system where the subscriber units use directional antennas and the access points use omnidirectional antennas. Harbin describes typical sectorized wireless communication, but does also describe the limited use of an omnidirectional antenna for transmissions from the base station. To the extent that Fette describes a subscriber unit with a directional antenna, such a subscriber unit would not be used in Harbin due to Harbin's receive antenna implementation.

For reasons given above, independent claim 1 is believed to be patentable.

Claims 2-13 are dependent claims and are also believed to be patentable.

Independent claim 14 recites a method of wireless communication. The method comprises transmitting downlink information in a substantially uniform coverage area around each of a plurality of access points, and receiving the downlink information at a subscriber unit. The method further comprises transmitting uplink information in a focused coverage area from the subscriber unit, and receiving the uplink information at one of the access points. Information is routed between the plurality of access points by receiving the information in a distribution point and sending the information to an access point in communication with the distribution point if the information is destined for a subscriber unit in communication with the access point. Otherwise, the information is forwarded to another distribution point in communication with the distribution point.

Harbin does not describe transmitting uplink information in a focused coverage area from the subscriber unit as claimed. Harbin describes sectorized reception wherein the base station receive antenna has a directional pattern in a horizontal plane and a mechanism for

steering the directional pattern azimuthly. There is no suggestion in Harbin of subscriber units having directional antennas, and there is no suggestion of subscriber units transmitting uplink information in a focused coverage area from the subscriber unit as recited by claim 14. With regard to transmitting uplink information in a focused coverage area from the subscriber unit, the Examiner refers to column 7, lines 17-29. This portion of Harbin only describes transmitting information to a remote subscriber station and there does not appear to be any teaching of a focused coverage area uplink from a subscriber unit. With regard to Fette, Fette does not overcome this deficiency. As explained above, to the extent that Fette describes the possibility for a directional antenna subscriber unit, there is no reason why of ordinary skill in the art would modify Harbin to incorporate such a feature as the use of the sectorized scanning receive antenna at the base station would suggest omnidirectional antennas on the subscriber units are required.

Claims 15-19 and 22-28 are dependent claims and are also believed to be patentable.

Independent claim 29 recites a wireless communication system comprising a plurality of access points, a network of distribution points, and a plurality of subscriber units. For reasons given above, Harbin and Fette do not suggest this recited combination of features. Claim 29 recites “each subscriber unit transmitting information packets over a focused directional coverage area.” As mentioned above, this feature is not described by Harbin, as acknowledged by the Examiner, and there is no reason one of ordinary skill in the art would modify Harbin. Further, note that claim 29 recites distribution points and routing information packets between the access points.

Finally, independent claim 31 recites a method of communicating comprising establishing a plurality of access points. Each access point has an omnidirectional antenna. The method further comprises establishing a channel between one of the access points and one of a plurality of subscriber units by selecting one of a plurality of antenna directions in the subscriber unit. The selected antenna direction implements a directional antenna. The method further comprises transmitting information packets in a uniform coverage area around each

access point, and receiving information packets at each access point. Each received information packet is transmitted from the directional antenna. There is no motivation to combine the cited references to achieve the invention as defined by claim 31. For example, claim 31 recites the selected antenna direction in the subscriber unit implementing a directional antenna.

For reasons given above, the claims are believed to be in condition for allowance and such action is respectfully requested.

Please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

DONALD L. HOHNSTEIN ET AL.

By: /Jeremy J. Curcuri/
Jeremy J. Curcuri
Reg. No. 42,454
Attorney for Applicants

Date: December 5, 2007

BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351